

Small bowel transplantation: the latest developments

Dunecan Massey
Simon Gabe
Stephen Middleton

Abstract

Improvements in survival mean that intestinal transplantation should now be routinely considered for selected patients. Survival has consistently improved since the late 80s. In the best performing centres, survival at 5 years is now similar to that found after liver (alone) and heart transplantation. Patient selection has improved and immunosuppression has been enhanced by the introduction of lymphocyte-modulating antibody therapy combined with less potent maintenance immunosuppression. The indications for intestinal transplantation remain conservative at present and largely reserve this procedure for patients who have life-threatening complications of parenteral nutrition or require surgical procedures that make simultaneous or subsequent transplantation advantageous. As survival figures improve, the indications are beginning to broaden, although caution should be exercised when considering transplantation for quality of life reasons and these alone are rarely sufficient to justify the risk associated with this procedure. In the latest report from the international intestinal transplant registry the survival figures are inferior to those expected for patients on parenteral nutrition. However, in the better performing centres, survival figures are now approaching those found with parenteral nutrition, and patients who are considered as good candidates for surgery might be offered the procedure at an earlier stage if this trend continues. This article describes the current indications for intestinal transplantation and the current results of the procedure, and provides guidelines for referring patients for transplantation assessment and for the management of the sick transplant patient. The need to consider referral of patients at an early stage to allow timely assessment for transplantation is also discussed.

Keywords Infections; intestinal; multivisceral; NASIT; nutrition; transplantation

A brief history of intestinal transplantation

The earliest significant innovations in the technical aspects of intestinal transplantation are considered to be the canine models developed by Richard Lillehei in the 1950s¹ and 1960s,² and the

Dunecan Massey MA BChir MRCP is a Consultant Physician and Gastroenterologist at Addenbrooke's NHS Trust, Cambridge University Hospital, UK. Competing interests: none declared.

Simon Gabe BSc MD MSc FRCP is a Consultant Gastroenterologist at St Mark's Hospital in Harrow, UK. Competing interests: none declared.

Stephen Middleton MA MD FRCP FAHE is a Consultant Physician and Gastroenterologist at Addenbrooke's NHS Trust, Cambridge University Hospital, UK. Competing interests: none declared.

What's new?

- Survival figures have improved over the last 20 years but have levelled off over the last 5 years
- Survival gap between home parenteral nutrition (HPN) and transplantation is closing
- Quality of life on 'HPN' can be improved by transplantation in about one-third of patients
- National Adult Intestinal Transplantation (NASIT) Forum — UK forum to discuss all patients before transplantation
- Gastroenterologists in regional and district hospitals will increasingly need to manage these patients as the number of procedures and survival of the patients are increasing in the UK
- It is now a requirement that all suitable patients should be referred (or discussed) for assessment at an appropriate stage before they lose the opportunity of transplantation

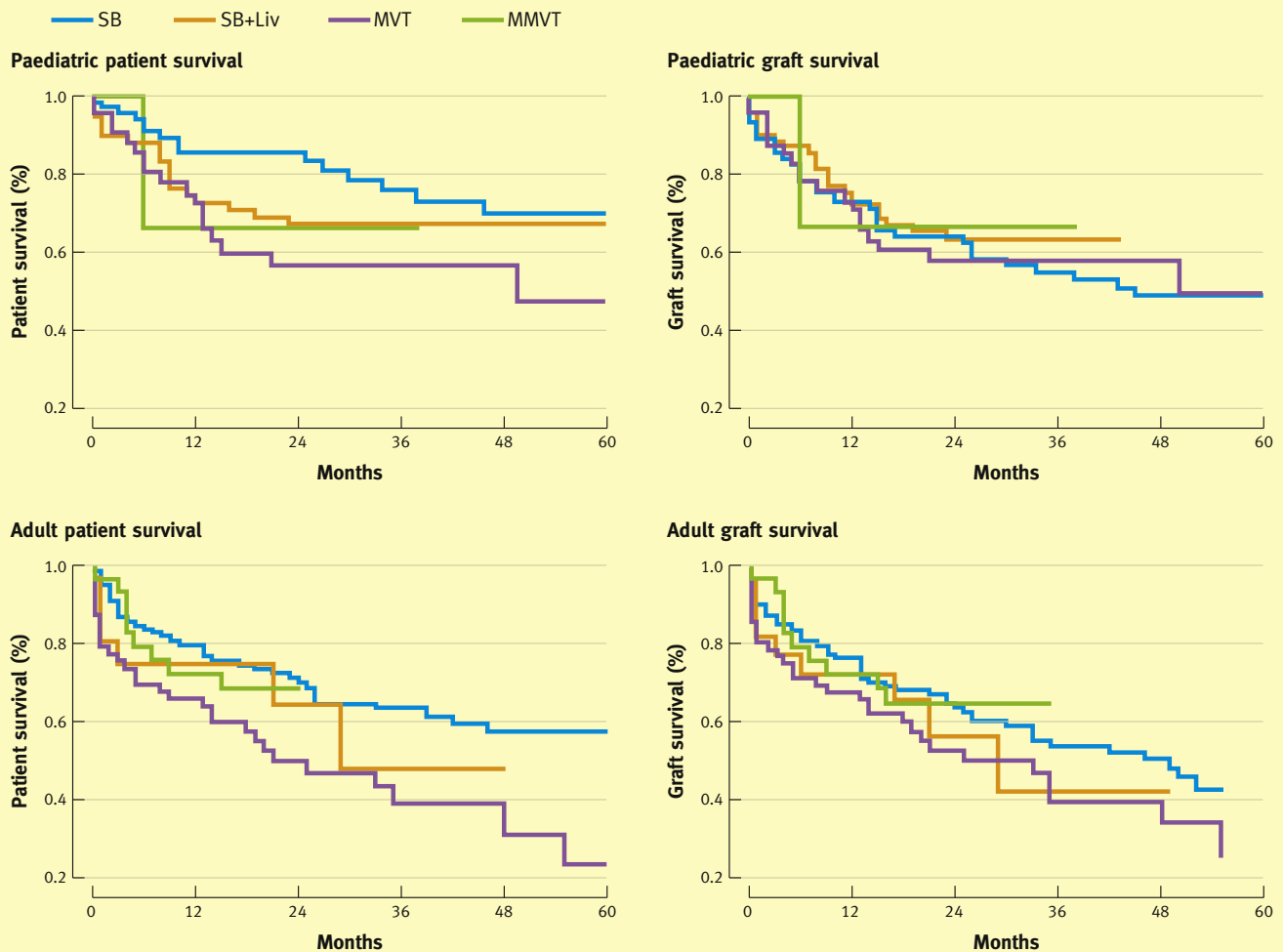
vascular anastomotic techniques of Carrel.³ Graft rejection impeded progress, but following the introduction of a series of powerful anti-rejection agents in the late 1980s,^{4,5} a cluster of reports appeared describing transplantation of part or all the intestine both in combination with other organs and as isolated grafts.^{6–9}

However, long-term survival remained modest at best¹⁰ until the introduction of lymphocyte-depleting induction therapy with agents such as alemtuzumab in the 1990s,^{11,12} and the appreciation that thorough preoperative preparation, patient selection and scrupulous postoperative management are of critical importance.¹³ Now, intestinal transplantation can be considered as a routine component of the management of adult and paediatric patients with intestinal failure (IF), and is beginning to replace parenteral nutrition in the long-term management strategy for many of these patients. An intestinal transplant is generally classified as either an isolated intestinal transplant, a multivisceral transplant (where liver and other organs are transplanted as a composite cluster of organs) or a modified multivisceral transplant where the small intestine and pancreas are transplanted along with a variety of other organs (which might include stomach, kidney, colon, spleen and occasionally abdominal wall) depending on requirements. Currently, children tend to have better survival than adults (Figure 1), and whereas overall international registry data suggest adult survival has not improved over the last 5 years, the survival of paediatric patients continues to show some improvement. At the time of the last international registry data analysis in 2013,¹⁰ 2887 intestinal transplants had been recorded since 1985 of which 1416 were alive.

The current role of transplantation in the management of intestinal failure

The survival rates of patients requiring home parenteral nutrition (HPN) range between 86 and 97% at 1 year, 57 and 83% at 5 years and 43 and 71% at 10 years.^{14–16} However, in the better performing centres this has been reported as higher with some units experiencing less than 2% mortality per year.^{17–20}

Patient survival following intestinal transplantation according to the age of the patient



(Reproduced with kind permission from the International Transplant Registry¹⁰)

SB, Isolated small intestine; SB+Liv, small intestine and liver transplant; MVT, multivisceral transplant; MMVT, modified multivisceral transplantation.

Figure 1

Survival following intestinal transplantation (any combination of organs including small intestine), as reported by the international registry (which receives details of >90% of all cases worldwide),¹⁰ is lower than for HPN (Table 1) but this survival gap has closed over the last decade.

As the survival gap between HPN and transplantation decreases, the importance of improved quality of life increases. Where there is little to choose between the two regarding survival, patients whose quality of life can be enhanced by transplantation should logically be given this opportunity. The limited quality of life data published so far suggests that considerable improvements can be seen in individual patients following transplantation, but overall about half the patients do not improve and around 20% experience a deterioration in quality of life after transplantation.^{21–24} Psychiatric health may also deteriorate following transplantation²⁵ as can nutritional status, with some patients losing up to 25% of their body weight during the first postoperative year.¹⁸

Nevertheless, recent advances in practice such as the inclusion of a colonic segment in the graft have improved both PN independence and graft survival (by 5% and 4%, respectively), and the appreciation that preoperative co-morbidity has a great influence¹⁰ on survival may lead to better patient selection and define a cohort of patients for earlier transplantation.

The current indications for intestinal transplantation^{11,26} are constructed around the premise that survival is better on HPN, and transplantation should be considered before patients lose the opportunity owing to progressive co-morbidity, in particular, loss of adequate venous access and IF-associated liver disease. These indications are being revised and will be largely in line with those given in Table 2.

What does intestinal transplantation involve?

In the UK, patients referred for consideration who appear to be good candidates are formally assessed at one of the intestinal transplantation centres. Currently, there are four centres in the

Download English Version:

<https://daneshyari.com/en/article/3806467>

Download Persian Version:

<https://daneshyari.com/article/3806467>

[Daneshyari.com](https://daneshyari.com)